North West Area Water Supply Project

Ref 89638

Operating Cost Estimate for Biota WTP

20-Jan-06

Conventional Treatment (DAF-Filtration-UV-CL2)

Plant Production

Maximum Plant Production	98.41	ML/d	26.0 Usmgd
Average Plant Production	40.00	ML/d	10.6 Usmgd

Power Costs

(See Separate Summary sheet)

Unit power cost	0.1	$/kwhr	Cost/ML
Power Requirement at Max capacity	390	kw	$9.5
Power Requirement at Ave capacity	259	kw	$15.6
Annual Power Used at Ave Capacity	2271691	kwHrs	
Annual Power Cost at Ave Capacity	**$227,169**		

Chemical Costs

Chemical	PACl	Polymer	Soda Ash	Sodium Hypochlorite	Ammonia (as 100% NH3)	Polymer (Residuals treatment)	Totals
Unit Cost $/kg	$0.65	$1.75	$0.35	$1.10	$2.00	$1.75	
Average Dose (as 100% product) mg/L	15.0	2.0	15.0	1.0	0.3	2.0	
Raw Stock Usage (kg/d)							
Max flow/max dose	1968	295	2460	1640	170	15	
Ave flow/ave dose	600	80	600	333	46	2	
Annual Usage at Ave Production (kg)	219000	29200	219000	121667	16782	877	
Annual Cost at Ave Production	$142,350	$51,100	$76,650	$133,833	$33,563	$1,536	**$439,032**

Labour Requirements and Costs

	No	Annual Cost	Total
Superintendent	0.5	$85,000	$42,500
Operators	4	$65,000	$260,000
Lab/tech	0.25	$60,000	$15,000
Total Labour Cost			**$317,500**

Cost Summary

All costs are in $US.

	Annual Cost	Cost/ML		Cost/mg	
	Ave Production	Max Production	Ave Production	Max Production	Ave Production
Power	$228,000	$9.5	$15.6	$36.0	$58.9
Chemicals	$440,000	$30.1	$30.1	$113.8	$113.8
Labour	$318,000	$8.9	$21.8	$33.5	$82.4
Spare Parts	$50,000	$1.4	$3.4	$5.3	$13.0
Heating and Light	$40,000	$1.1	$2.7	$4.2	$10.4
Miscellaneous	$50,000	$1.4	$3.4	$5.3	$13.0
Totals	**$1,126,000**	**$52**	**$77**	**$198**	**$291**

All costs relate solely to treatment process and residuals treatment.

Costs exclude: Raw water and treated water pumping
Residuals disposal off-site